



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/795,972

03/08/2004

Edward W. Jackson

7045.46

8602

21999

7590

08/06/2009

KIRTON AND MCCONKIE
60 EAST SOUTH TEMPLE,
SUITE 1800
SALT LAKE CITY, UT 84111

EXAMINER

LEUNG, JENNIFER A

ART UNIT

PAPER NUMBER

1797

MAIL DATE

DELIVERY MODE

08/06/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/795,972	Applicant(s) JACKSON ET AL.	
	Examiner JENNIFER A. LEUNG	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 16-20 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,4,6-10 and 12-15 is/are allowed.
- 6) ☒ Claim(s) 1,2,5 and 11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1797

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on May 14, 2009 has been considered. Claims 1-20 are pending, of which claims 16-20 are withdrawn from consideration.

Election/Restrictions

2. Previously submitted claims 16-20 (added July 7, 2008) are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

- I. Claims 1-15 are drawn to an apparatus, classified in class 422, subclass 160.
- II. Claims 16-20 are drawn to a method, classified in class 423, subclass 521.

The inventions are distinct, each from the other because inventions I and II are related as process and apparatus for its practice. The inventions are distinct if it can be shown that either: (1) the process as claimed can be practiced by another and materially different apparatus or by hand, or (2) the apparatus as claimed can be used to practice another and materially different process. (MPEP § 806.05(e)). In this case, the apparatus as claimed can be used to practice another and materially different process, such as a process of purifying exhaust gas.

Since Applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 16-20 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 1797

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Scheu (US 2,070,142).

Regarding claims 1 and 2, Scheu discloses an apparatus (see FIG. 6; page 3, column 2, line 36 to page 4, column 2, line 19) comprising:

a burn chamber comprising one or more sidewalls (i.e., the walls of cylindrical member **68**, frustoconical portion **71**), a base (i.e., at the lower end of the cylindrical tubular member **68**), a lid (i.e., top wall **71a**) and a gas outlet (i.e., vapor outlet opening **72**);

a hopper comprising one or more sidewalls (i.e., the peripheral wall of heater base portion **63**), a base (i.e., the bottom of the heater base portion **63**), and a lid (i.e., cover **64**), wherein the hopper substantially surrounds the burn chamber;

a conduit (i.e., defined by portions **73**, **74**, **75**, **81**) connected to the gas outlet; and

a hatch (i.e., opening **6a**, covered with a hinge mounted cap member) in the lid **64**.

Regarding claim 5, Scheu (see FIG. 6; page 3, column 2, line 36 to page 4, column 2, line 19) discloses an apparatus comprising:

a burn chamber comprising one or more sidewalls (i.e., the walls of cylindrical member **68**, frustoconical portion **71**), a base (i.e., at the lower end of the cylindrical tubular member **68**), a lid (i.e., top wall **71a**) and a gas outlet (i.e., vapor outlet opening **72**);

a hopper comprising one or more sidewalls (i.e., the peripheral wall of heater base portion **63**), a base (i.e., the bottom of the heater base portion **63**), and a lid (i.e., cover **64**), wherein the hopper substantially surrounds the burn chamber;

Art Unit: 1797

a conduit (i.e., frustoconical member **81**) connected to the gas outlet; and
a housing (i.e., defined by portions **73, 74, 75**) adjacent to the burn chamber and capable of capturing the radiant heat of the burn chamber.

Although Scheu discloses that the material to be burned comprises liquid fuel, and not solid sulphur, the apparatus of Scheu still meets the claim, since expressions relating the apparatus to contents thereof during an intended operation are of no significance in determining patentability of the apparatus claim, *Ex parte Thibault*, 164 USPQ 666, 667 (Bd. App. 1969); and the inclusion of a material or article worked upon by a structure being claimed does not impart patentability to the claims. *In re Young*, 75 F.2d 966, 25 USPQ 69 (CCPA 1935); *In re Otto*, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963). A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. In the instant case, the prior art structure would be capable of performing the intended use of burning solid sulphur, e.g., by supplying solid sulphur to the hopper **63** via the hatch **6a** and burning the solid sulphur admitted into the burn chamber via the elongated slots **69** (see FIG. 6).

Instant claims 1, 2 and 5 structurally read on the apparatus of Scheu.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the

Art Unit: 1797

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Porak (US 585,404) in view of Jackson (US 6,080,368).

Porak discloses an apparatus (see FIGs. 1-3 and entire specification) comprising: a chamber **A** comprising one or more sidewalls, a base, a roof, and a gas outlet; a first conduit **S** connected to the gas outlet for conducting sulphur dioxide gas; and a second conduit **F²** for conducting a stream of water (i.e., from reservoir **G**), the second conduit **F²** comprising a restrictor (see FIG. 3, reduction in diameter in the direction of flow); wherein the first conduit **S** extends into the restrictor so as to point and terminate downstream in the restrictor. Porak further discloses that chamber **A**, “represents a stove or an appropriate apparatus for the production of sulfurous acid or other gases used in the saturation of fluids,” (lines 46-51). Porak, however, does not specifically disclose the claimed burn chamber for the generation of the sulfur dioxide gas from solid sulphur.

Jackson teaches a burn chamber **40** in which to combust solid sulphur (i.e., from hopper **20**), the burn chamber comprising one or more sidewalls **44**, a base **42**, a lid **46** and a gas outlet **60** (see FIGs. 1, 2; column 5, line 65 to column 6, line 42).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the burn chamber of Jackson for the chamber **A** of Porak, because the

Art Unit: 1797

burn chamber of Jackson would have been considered a known and appropriate apparatus for producing the required sulfur dioxide gas. Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, *In re Fout* 213 USPQ 532 (CCPA 1982); *In re Susi* 169 USPQ 423 (CCPA 1971); *In re Siebentritt* 152 USPQ 618 (CCPA 1967); *In re Ruff* 118 USPQ 343 (CCPA 1958), and when the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result, *KSR International Co. v. Teleflex Inc.*, 550 U.S. --, 82 USPQ2d 1385 (2007).

With respect to the new limitation, Porak fails to disclose a blender disposed in the second conduit, downstream of the restrictor. Jackson, however, also teaches a blender (i.e., objects 77; FIG. 3; column 7, lines 18-40). It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a blender in the second conduit, downstream from the restrictor, in the modified apparatus of Porak, because the blender would allow for further mixing and agitation of the water/acid and unreacted SO₂ gas, and thereby facilitate further reaction of the SO₂ with the water/acid to sulphurous acid, as taught by Jackson.

Allowable Subject Matter

5. Claims 3, 4, 6-10 and 12-15 are allowed, for the same reasons indicated in the previous Office Action.

Response to Arguments

6. Applicant's arguments filed May 14, 2009 with respect to claims 1, 2, 5 and 11 have been considered but are moot in view of the new grounds of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the

Art Unit: 1797

examiner should be directed to JENNIFER A. LEUNG whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797